Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

25. (Currently amended) A method ~~for detecting a presence, determining a location, and quantifying an amount of at least a chemical species, said method~~ comprising:

(1) providing a capillary having two opposed ends and a wall that is permeable to ~~said~~ at least one chemical species at a location where said chemical species is suspected to be present;

(2) delivering at least one fluid medium into a space inside said capillary;

(3) providing at least one detector having a sensing element ~~for detecting said~~ operable to detect at least one characteristic of said ~~at least one~~ chemical species;

(4) allowing said chemical species to permeate through said wall of said capillary;

(5) transferring a content of said capillary to said sensing element of said detector after a permeation of said ~~at least one~~ chemical species into said capillary, said content comprising said fluid medium and said ~~at least one~~ chemical species;

(6) detecting and measuring a magnitude of said characteristic of said ~~at least one~~ chemical species within said capillary;

(7) measuring a time at which said characteristic is detected and measured; and

(8) relating said magnitude of said characteristic to ~~said~~ an amount of said chemical species and relating said time to said location of said chemical species, wherein said transferring of said content is in a substantial plug flow such that the time at which

said characteristic of said interaction is detected provides a location of said interaction within said capillary, and in which said capillary location determines a location of said chemical species outside said capillary.

Claim 26. (Original) The method according to claim 25, wherein said detector employs a method of detection selected from the group consisting of optical, spectroscopic, electrochemical, gravimetric, and mass spectrometric methods.

Claim 27. (Original) The method according to claim 26, wherein said optical method is selected from the group consisting of refractive index measurement and light scattering.

Claim 28. (Original) The method according to claim 26, wherein said spectroscopic method is selected from the group consisting of measurements of UV-VIS electronic absorbance, Raman spectra, luminescence spectra, infrared spectra, and near-infrared spectra.

Claim 29. (Currently amended) A method ~~for detecting a presence, determining a location, and quantifying an amount of at least a chemical species, said method~~ comprising:

(1) providing a capillary having two opposed ends and a wall that is permeable to ~~said~~ at least one chemical species at a location where said chemical species is suspected to be present;

(2) delivering at least one fluid medium comprising at least one reagent into a space inside said capillary, said at least one reagent being capable of undergoing a selective interaction with said chemical species to yield at least one optically detectable interaction product;

(3) providing at least one detector having a sensing element ~~for detecting~~ operable to detect said at least one optically detectable interaction product;

(4) allowing said chemical species to permeate through said wall of said capillary and selectively interact with said reagent to yield said at least one optically detectable product;

(5) transferring, after said selective interaction, a content of said capillary to said sensing element of said detector, said content comprising said at least one optically detectable interaction product;

(6) detecting and measuring a magnitude of an optical signal resulting from a presence of said at least one optically detectable product;

(7) measuring a time at which said optical signal is detected and measured; and

(8) relating said magnitude of said optical signal to ~~said~~ an amount of said chemical species ~~and relating said time to said location of said chemical species,~~ and wherein said transferring of said content is in a substantial plug flow such that the time at which said optical signal is detected provides a location of said interaction product within said capillary, and in which said capillary location determines a location of said chemical species outside said capillary.

Claim 30. (Original) The method according to claim 29, wherein said optical signal is selected from the group consisting of absorbance and intensity of emission of EM radiation having a wavelength in a range from about 100 nm to about 1 mm.

Claim 31. (Currently amended) The method according to claim 29, wherein said capillary comprises a polymeric material selected from the group consisting of expanded polytetrafluoroethylene ~~("PTFE")~~, poly(vinyl chloride) ~~("PVC")~~, poly(vinyl alcohol) ~~("PVA")~~, polyurethane, polyolefins, polycarbonate, polystyrene, polyamide, poly(vinylidene fluoride) ~~("PVDF")~~, polyarylsuphones, polyacrylonitrile, polyether,

poly(ether thioether), poly(methyl methacrylate), polyvinylpyrrolidone, polysiloxane, copolymer of perfluorosulfonic acid and polytetrafluoroethylene, random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole, copolymer of perfluorosulfonic acid and polytetrafluoroethylene, random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole, copolymers thereof, and blends thereof.

Claim 32. (Currently amended) The method according to claim 29, wherein said capillary comprises a polymeric material deposited on a porous solid substrate; said polymeric material being selected from the group consisting of expanded polytetrafluoroethylene ~~("PTFE")~~, poly(vinyl chloride) ~~("PVC")~~, poly(vinyl alcohol) ~~("PVA")~~, polyurethane, polyolefins, polycarbonate, polystyrene, polyamide, poly(vinylidene fluoride) ~~("PVDF")~~, polyarylsuphones, polyacrylonitrile, polyether, poly(ether thioether), poly(methyl methacrylate), polyvinylpyrrolidone, polysiloxane, copolymer of perfluorosulfonic acid and polytetrafluoroethylene, random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole, copolymer of perfluorosulfonic acid and polytetrafluoroethylene, random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole, copolymers thereof, and blends thereof.

Claim 33. (Original) The method according to claim 32, wherein said porous solid substrate is a porous glass capillary.

Claim 34. (Original) The method according to claim 31, wherein said capillary is porous and has pore size in a range from about 1 nm to about 200 nm.

Claim 35. (Currently amended) The method according to claim 34, wherein said capillary ~~preferably~~ has pore size in a range from about 1 nm to about 50 nm.

Claim 36. (Original) The method according to claim 31, wherein said capillary has an inner diameter in a range from about 2 micrometers to about 2 mm.

Claim 37. (Original) The method according to claim 31, wherein said inner diameter is ~~preferably~~ in a range from about 0.1 mm to about 1.5 mm.

Claim 38. (Original) The method according to claim 31, wherein said capillary has a wall thickness in a range from about 10 micrometers to about 200 micrometers.

Claim 39. (Original) The method according to claim 38, wherein said wall thickness is ~~preferably~~ in a range from about 10 micrometers to about 150 micrometers.

Claim 40. (Original) The method according to claim 29, wherein said chemical species is selected from the group consisting of halogenated hydrocarbons, polynitroaromatic hydrocarbons, mono-substituted benzene, aromatic aldehydes, aromatic amines, and mixtures thereof.

Claim 41. (Original) The method according to claim 40, wherein said halogenated hydrocarbons are trichloroethylene, trichloroethane, chloroform, bromoform, chlorodibromomethane, and bromodichloromethane.

Claim 42. (Original) The method according to claim 40, wherein said polynitroaromatic hydrocarbons are 1,3,5-trinitrobenzene; 2,4,6-trinitrobiphenyl; 2,3',4,5',6-pentanitrobiphenyl; 2,2',4,4',6,6'-hexanitrobiphenyl; 2,4,6-trinitrotoluene; 2,2',4,4',6,6'-hexatrinitrobiphenyl; 2,2',4,4',6,6'-hexanitrostilbene; 2,2'4,4'-tetranitrobiphenyl; 3,3',5,5'-tetranitrobiphenyl; 2,2',6,6'-tetranitrobiphenyl; 1,4,5,8-

tetranitronaphthalene; 1,3-dinitrobenzene; 2-ethoxy-1,3,5-trinitrobenzene; 2-methyl-1,3-dinitrobenzne; 2,4-dimethyl-1,3-dinitrobenzne; and mixtures thereof.

Claim 43. (Original) The method according to claim 40, wherein said mono-substituted benzene has a formula of Ar-X, wherein Ar is a phenyl radical and X is a radical selected from the group consisting of $-CH_3$, $-OCH_3$, $-C_6H_5$, $-SCH_3$, and $-SC_6H_5$.

Claim 44. (Original) The method according to claim 40, wherein said aromatic aldehydes are benzaldehyde, 1-naphthaldehyde, 9-anthraldehyde, 4-dimethylaminocinnamaldehyde, 2-nitrobenzaldehyde, and 4-nitrobenzaldehyde.

Claim 45. (Original) The method according to claim 40, wherein said aromatic amines are pyridine and alkyl-substituted pyridine.

Claim 46. (Currently amended) A method ~~for detecting a presence, determining a location, and quantifying an amount of at least a chemical species, said method~~ comprising:

(1) providing a capillary having two opposed ends and a wall that is permeable to ~~said~~ at least one chemical species at a location where said chemical species is suspected to be present;

(2) delivering at least one fluid medium comprising at least one reagent into a space inside said capillary, said at least one reagent being capable of undergoing a selective interaction with said chemical species to yield at least one optically detectable interaction product;

(3) providing at least one detector having a sensing element ~~for detecting~~ operable to detect said at least one optically detectable interaction product;

(4) allowing said chemical species to permeate through said wall of said capillary and react with said reagent to yield said at least one optically detectable interaction product;

(5) transferring, after said reaction, a content of said capillary to said sensing element of said detector, said content comprising said at least one optically detectable interaction product;

(6) detecting and measuring a magnitude of an optical signal resulting from a presence of said at least one optically detectable interaction product;

(7) measuring a time at which said optical signal is detected and measured; and

(8) relating said magnitude of said optical signal to ~~said~~ an amount of said chemical species ~~and relating said time to said location of said chemical species~~ and wherein said transferring of said content is in a substantial plug flow such that the time at which said optical signal is detected provides a location of said interaction product within said capillary, and in which said capillary location determines a location of said chemical species outside said capillary; and

wherein said capillary comprises a polymeric material selected from the group consisting of expanded polytetrafluoroethylene ~~("PTFE")~~, poly(vinyl chloride) ~~("PVC")~~, poly(vinyl alcohol) ~~("PVA")~~, polyurethane, polyolefins, polycarbonate, polystyrene, polyamide, poly(vinylidene fluoride) ~~("PVDF")~~, polyarylsuphones, polyacrylonitrile, polyether, poly(ether thioether), poly(methyl methacrylate), polyvinylpyrrolidone, polysiloxane, copolymer of perfluorosulfonic acid and polytetrafluoroethylene, random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole, copolymers thereof, and blends thereof; and said detector is capable of quantitatively relating an optical signal resulting from a presence and an amount of said at least one optically detectable reaction product to said presence and said amount of said chemical species outside said capillary; and said optical signal is selected from the group consisting of

absorbance and emission of EM radiation having a wavelength in a range from about 100 nm to about 1 mm.

Claim 47. (Original) The method according to claim 46, wherein said chemical species is selected from the group consisting of halogenated hydrocarbons, polynitroaromatic hydrocarbons, mono-substituted benzene, aromatic aldehydes, aromatic amines, and mixtures thereof.

Claim 48. (Currently amended) The method according to claim 29, ~~wherein the method is used to detect~~ further comprising detecting a presence of said chemical species in ~~an~~ a predetermined environment, ~~to determine~~ determining a ~~location or~~ spatial distribution of said chemical species in the predetermined environment, and ~~to quantify~~ quantifying an amount of said chemical species in ~~an~~ the predetermined environment.

Claim 49. (Currently amended) The method according to claim 48, wherein said predetermined environment is soil ~~at a range of underground depths~~.

Claim 50. (Currently amended) The method according to claim 29, ~~wherein the method is used to detect~~ further comprising detecting a presence and ~~to quantify~~ quantifying products of a chemical synthesis that is conducted in a combinatorial chemistry experiment.